NATURAL RESOURCES AGENCY EDMUND G. BROWN JR., GOVERNOR

DEPARTMENT OF CONSERVATION

Managing California's Working Lands

DIVISION OF OIL, GAS, & GEOTHERMAL RESOURCES

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August 8, 2013

Ms. Michele Dermer
Ground Water Office, U. S. EPA, Region 9
75 Hawthorne Street
San Francisco, CA 94105

Dear Ms. Dermer:

PROPOSED GEOTHERMAL INJECTION PROJECT, TOWN OF MAMMOTH LAKES, CA

An operator, Alpine Circle, LLC, is proposing an injection project in the Town of Mammoth Lakes, CA. The proposed project is within the northern part of the Mammoth Groundwater Basin. An existing geothermal production well is completed within consolidated bedrock that underlies the water-bearing sediments that comprise the aquifer of the Mammoth Groundwater Basin. The bedrock formations act as the effective base of the aquifer, and deeper fractured sections also act as the reservoir for the low-temperature geothermal fluid. The proposed injection well will also be completed within the same bedrock, approximately one-eighth of a mile southwest of the production well. The fluid from the existing production well has an elevated temperature (139.5°F) and low total dissolved solids (TDS) (280 mg/L). This water quality is similar to that found in shallower groundwater wells used by the Mammoth Community Water District (MCWD). The nearest MCWD well (No. 17) is approximately one-third of a mile southwest of the proposed injection well. Based on the historic monitoring of this well, the TDS of the sampled water ranges from 223 to 337 mg/L. The low-temperature geothermal fluid will be produced from and injected back into the same fracture zones within the deeper bedrock formations. The only change between the produced fluid and the injected fluid will be the removal of heat. Nothing will be changed in the composition of the fluid nor will any contaminants be introduced into the reservoir. In essence, the injection well will operate as a "return flow" well for this system and will not be used to dispose of wastes.

Rather than request an aquifer exemption, the Division of Oil, Gas, and Geothermal Resources (Division) is proposing that both the aquifer and the low-temperature reservoir be protected by a permit such that injection does not

violate the terms and requirements of 40 CFR §144.12. This was the permitting approach taken in a similar injection project at the Canby geothermal field. A copy of the permitting letter issued by the U.S. EPA is enclosed for your reference. The Division also plans on regulating this well pursuant to the requirements in the Memorandum of Agreement we currently have with U.S. EPA and our California statutes and regulations regarding geothermal injection. The injection project would go through our injection project approval process before the Division will issue an injection permit in the form of a Project Approval Letter. If the project is approved, the well will be closely monitored and tested periodically for casing integrity.

Please confirm if this proposal for permitting this injection project is acceptable to the U.S. EPA. If you have any questions, please feel free to contact Jack Truschel at (916) 323-1787.

Sincerely,

Elizabeth Johnson
Geothermal Officer

Enclosure: Canby Geothermal Field Aquifer Protection

cc: George Robin, US EPA, Region IX
Jerry Salera, UIC Program Manager, CA DOGGR
Jack Truschel, Geothermal District Engineer, CA DOGGR

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

September 7, 2012

Elizabeth Johnson
Geothermal Officer
California Division of Oil, Gas, and Geothermal Resources
801 K Street, MS 20-21
Sacramento, California 95814

RE: Canby Geothermal Field
Modoc Contracting Company

Dear Ms. Johnson,

Thank you for your letter of June 11, 2012 regarding the Canby Geothermal Field. Based on the information you have provided to the United States Environmental Protection Agency, Region 9 Ground Water Office ("EPA"), including your letter, we understand that the geothermal reservoir is an underground source of drinking water (USDW), that the two wells described in your letter are completed within the same reservoir, and that the proposed injection fluid will be solely "return flow" fluid that has not been altered nor introduced with wastes of any kind.

With these understandings, we have determined that an Aquifer Exemption as defined in 40 CFR §§ 144.7 and 146.4, is not required. However, we require that this Aquifer must be protected by a permit such that injection must not violate the terms and requirements of 40 CFR § 144.12 "Prohibition of movement of fluid into underground sources of drinking water." In addition, our determination is based on the information and current representations you have provided. Should there be any change to the proposed activities or circumstances, please notify EPA.

If you have any questions, or wish to discuss this letter, please call me at 415-972-3971 or contact George Robin of my staff at 415-972-3532.

Sincerely,

David Albright
Manager, Ground Water Office

cc: Tim Kustic, State Oil and Gas Supervisor

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